

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-27 are currently pending, with Claims 10-19 being withdrawn as directed to non-elected inventions. Claims 1, 4-7, 10, 14, and 17 have been amended; and Claims 20-27 have been added by way of the present amendment. The changes and additions to the claims are supported by the originally filed specification and do not add new matter.

In the outstanding Office Action, Claims 1-9 were rejected under 35 U.S.C. § 102(a) as being anticipated by the Yamanaka et al. reference (October, 2003 IEEE Ultrasonics Symposium, pages 299-301); Claims 1-3 were rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,566,787 to Tsukahara et al. (hereinafter “the ‘787 patent”); Claims 4-7 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘787 patent in view of U.S. Patent No. 6,029,500 to Tom (hereinafter “the ‘500 patent”); and Claims 8 and 9 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the ‘787 patent in view of U.S. Patent No. 6,060,692 to Bartley et al. (hereinafter “the ‘692 patent”).

Applicant wish to thank the Examiner for the interview granted Applicants’ representative on July 10, 2009, at which time the Examiner indicated that box 10b was checked in error and that the drawings should not have been objected to.

Applicants respectfully submit that the rejection of Claims 1-9 as being anticipated by the Yamanaka et al. reference are rendered moot by the present perfection of priority to Applicants’ foreign priority application. Submitted herewith is a certified English translation of Japanese Patent Application No. 2003/086468, filed March 26, 2003. Further, Applicants note that the Yamanaka et al. reference has a priority date of October 2003. Accordingly, Applicants respectfully submit that, based on the present perfection of priority, the Yamanaka et al. reference does not qualify as prior art and that the rejection should be withdrawn.

Amended Claim 1 is directed to a sensor head, comprising: (1) a three-dimensional base body having a curved surface allowing definition of a circular orbital band; (2) an interdigital electroacoustic transducer arranged on the orbital band of the three-dimensional base body, and configured to excite a surface acoustic wave to perform multiple roundtrips along the orbital band; and (3) a gas-sensitive film at least a part of which is formed on at least a part of the orbital band of the three-dimensional base body, and configured to react with a specific gas molecule so as to develop a change in a propagation characteristic of the surface acoustic wave, wherein the interdigital transducer converts the surface acoustic wave orbiting along the orbital band into a high frequency electric signal so as to detect the change in the propagation characteristic. The changes to Claim 1 are supported by the originally filed specification and do not add new matter.¹

The ‘787 patent is directed to an elastic surface-wave device that includes a substrate having a surface, wherein the surface includes a circularly continuous band on a spherical shape; a surface acoustic wave generator that is provided on the surface of the substrate the circularly continuous band and generates surface acoustic waves on the surface. Further, the ‘787 patent discloses that the spherical shape is related to the surface acoustic wave so that the surface acoustic wave propagates within the circularly continuous band in a first direction without diffusing over the circularly continuous band in a second direction other than the first direction.

However, Applicants respectfully submit that the ‘787 patent fails to disclose a gas-sensitive film at least a part of which is formed on at least a part of the orbital band of a three-dimensional base body, and configured to react with a specific gas molecule so as to develop a change in a propagation characteristic of the surface acoustic wave, as recited in amended Claim 1. Rather, the ‘787 patent merely discloses that the surface acoustic wave generator 14

¹ See, e.g., page 8, lines 5-23; page 20, lines 7-10; and page 22, line 15 to page 23, line 16 of the originally filed specification.

includes a piezo-electric material film 14a attached at a desired position on the surface of the substrate 12.²

Further, Applicants respectfully submit that the ‘787 patent fails to disclose that the interdigital transducer converts the surface acoustic wave orbiting along the orbital band into a high frequency electric signal so as to detect the change in the propagation characteristic, as recited in amended Claim 1. Applicants respectfully submit that the ‘787 patent is silent regarding this limitation.

Accordingly, for the reasons stated above, Applicants respectfully submit that the rejection of Claims 1-3 as anticipated by the ‘787 patent are rendered moot by the present amendment to Claim 1.

Regarding the rejection of dependent Claims 4-9 under 35 U.S.C. § 103(a), Applicants respectfully submit that the ‘500 and ‘692 patents fail to remedy the deficiencies of the ‘787 patent, as discussed above. Accordingly, Applicants respectfully submit that the rejections of dependent Claims 4-9 are rendered moot by the present amendment to Claim 1.

The present amendment also sets forth new Claims 20-27 for examination on the merits. New Claims 20-26 ultimately depend from Claim 1 and are supported by the originally filed specification and do not add new matter.³

Further, new Claim 27 is directed to a sensor head and includes limitations similar to those recited in amended Claim 1. Claim 27 is supported by page 21, lines 5 and 6; page 8, lines 5-23; and page 22, line 15 through page 23, line 16 in the specification. Accordingly, no new matter has been added. Further, Applicants respectfully submit that new Claim 27 patentably defines over any proper combination of the cited references, for at least the reasons stated above regarding Claim 1.

² See the ‘787 patent, column 5, lines 21-36.

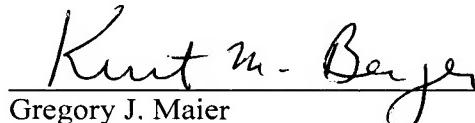
³ See, e.g., for Claim 20, page 23, line 10 through page 24, line 24; for Claim 21, page 23, lines 10-17; for Claim 22, page 19, lines 5-9; for Claim 22, page 19, lines 9-19 and Figure 2B; for Claim 24, page 25, lines 8-14 and Figure 4A; for Claim 25, page 29, lines 16-17; and for Claim 26, page 29, lines 18-19 and Figure 6B.

Thus, it is respectfully submitted that independent Claims 1 and 27 (and all associated dependent claims) patentably define over any proper combination of the Yamanaka et al. reference, the '787 patent, the '500 patent, and the '629 patent.

Consequently, in view of the present amendment and in light of the above discussion, the outstanding grounds for rejection are believed to have been overcome. The application as amended herewith is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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